DOVER COMMUNITY SCHOOL

PLANNING THE NEW PLANT

W. M. COWAN

DOVER COMMUNITY SCHOOL

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PLANNING THE NEW PLANT

A PROJECT

PREPARED

by

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THESIS - M.A.

SPONSORED

by

GRADUATE DEPARTMENT

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PREFACE

In preparing this project, as principal of the Dover Elementary and Junior High School, I realize that the plans submitted are but suggestive.

Whoever is selected as the architect must naturally determine the technical details of specification and construction. However, that individual, not being acquainted with conditions, as is the author, should be willing to give consideration to the suggestions contained herein.

The actual plans will eventually face the problem of approval by State and County officials in regard to cost of materials and construction as well as details of arrangement.

It is with the thought in mind, that one well acquainted with the community and its educational needs should help to plan its educational plant and program, that I have studied buildings for similar conditions and attempted to incorporate in my suggestions those features which are especially suited to the situation at Dover, Florida.

Our sincere hope is that many, if not all, of the suggestions offered may finally be incorporated into the new school plant which the Dover Community has so long needed.

W.H.C.

THE NEED

For years there has been a definite need at Dover, Florida, for a new school in a new location.

The main building in use now, was built, in its first stages, in the early 1900s as a one story structure. This was changed in the 1920s to a two story building, which was followed by an annex of five rooms, built for the primary grades in 1938 - 39.

These changes were made necessary by increased enrollment from year to year. They were not accompanied, however, by any increase in the school grounds area or in special facilities.

As a result, the entire plant lacks efficient lighting, except in the lunch room, which, although modern, is much too small for the service which is expected of it. Plumbing,in the school buildings proper, is completely lacking, and such things as special rooms for special subjects or activities are entirely unknown.

For an auditorium, a "community hall" is used. But besides being a block distant from the nearest part of the school building,it is also used for public picture and road shows. This makes the place unsatisfactory as an assembly place for the more than 500 boys and girls now enrolled.

The present building is in bad state of repair, needing an entire new roof. It shakes from the movement of pupils and is a definite fire hazard on account of its construction and method of heating.

The location, besides being entirely inadequate, so far as room is concerned, is close to a heavily traveled railroad whose heavy trains cause the building to shake, and the noise puts a stop to all efforts

at recitation within the classrooms, or where hearing is concerned. Such interruptions are naturally more frequent and annoying than in the earlier days when trains and traffic were lighter and the trains were not required to sound their whistles the entire distance through the village as at present.

There is but one way in which this can be made a satisfactory school. That is to build an entirely new building and plant upon an entirely new site, allowing room for present needs and enough to provide for future expansion.

SELECTING THE LOCATION

Our problem,then, is to find the best location and plan the building best suited to the educational program which we hope to develop within the next several years.

Such a location should be as near as possible to the center of the present school population, noting trends and increases in recent years. It should also be such as to allow for an area of fifteen to twenty acres, to provide room for the regular buildings, sanitation developments, such as drainage,septic tanks, grease traps,etc.,and abundant space for a recreational program for all grades involved. In addition, it must lie adjacent to highway transportation and public utilities such as telephone and electricity, yet away from disturbing noises.

Our first step in carrying out this part of our plan was to make a map showing the approximate place of residence of all pupils now attending the school. This shows that the population centers about three chief areas. They are the village of Dover, "Maxey's Corner",

30 29 26 25

Moore Lake

1 mi. circle

Ms Intosh

Gallagher

31 32 33 34 Road 33 36

2 mi. circle

Line

State

DOVER

29

6 5 4 3 2 1

Walden-Sheffield Rd

Present School Site

7 8 9

TURKEY CREEK

11 12

R.F.

Purple shows Junior H.S. Pupils

Green shows Elementary Pupils

SIDNEY

27

18 17 16 14 Hoyles 13 Rd.

Valrico District

Airline

about two miles east, and Sydney, nearly three miles southeast of the present location.

According to plans already announced by the County School Board, a portion of the Sydney area may later be sent to another school center, but should this be done, pupils from the Valrico area to the south west will certainly be shifted to the Dover attendance area.

Checking our map carefully, we find that a point one-half mile directly east of the present school, meets our requirements in most respects. However, there are others adjoining this one which would meet the conditions almost as satisfactorily, should the first prove to not be available at a reasonable cost.

This plot lies along a hard surfaced road to provide for transportation. It is well drained,has a fertile soil and is close enough to public utilities to make them readily available. It is sufficiently distant from the railroad that danger and interference from noise are not to be feared.

By using this plot as a center on the map and counting the pupils within a circle having a two mile radius, we find that it encircles 384 boys and girls now attending Dover School. This then is slightly over 76% of the school enrollment living within two miles of the selected center.

Any changes, such as mentioned earlier, in attendance area as planned by the County Board, would naturally fall outside of this circle. Consequently such changes would affect our actual center very little,if at all.

BUILDING CONDITIONS TO BE MET

As to the building, it should be planned first for utility. That is the planning should be from within toward the outside, rather than the reverse as we so often find it. Too many buildings are designed first for appearance, then for utility in-so-far as it can be fitted into the original.

Since we hope to make this a community school,its usefullness is not only to the boys and girls of the community but to the adults as well. This means that certain activities must be anticipated and rooms designed to make them easily accessible to the outside as well as to those regularly within the school.

The traffic problem, that is that the movement within the building proper must not be interrupted by those from the outside, must be kept in mind. Such is especially true in regard to the auditorium, shop,home making,library and other rooms which will be discussed later in this report.

In so far as possible, careful study should be made as to the best space and instructional allotments. One should not plan just so many classrooms, but each for its particular use , and in relation to other rooms whose occupants should be as close as possible. Of course allowance must be made for certain flexibility of plan to meet changing content and methodology in education which are bound to come in later years.

With all this, the provision for comfortable and efficient hearing and seeing conditions must be constantly in mind. This involves study to prevent annoyance and interference as to hearing, and the best methods of lighting, both natural and artificial.

With our abundant Florida sunshine, by careful study we can greatly improve our daylighting over practices of the past. This of course should be supplemented by efficient artificial illumination to care for the many short periods of daytime darkness so commonly encountered during the summer rainy season.

Attention should be given to arrangement of rooms and passageways to reduce student traffic, movement of equipment, books and supplies. This means that the planning involves the purposes of the various rooms, whether for special or regular use, and their relation to each other.

We must keep in mind the protection of certain quiet areas. These include library and regular class rooms which should be as far away as possible from the noisy activities such as music, shop and play. All groups should be protected from disturbing odors arising from laboratory or kitchen.

Naturally a large number of pupils will be transported by bus. The entrance to the building for these groups must receive special attention. Since the rainy season in Florida so frequently interferes with the movement of pupils unless the passageways are covered, it is very important that the entrance way of bus pupils be covered to protect them as they load or unload. A separate entrance should be planned for those who walk to school, that their coming or going will not be interfered with by the transportation system.

We must recognize the fact that changes take place, such as increases in enrollment and expansion of educational services. This demands that we, in selecting the site of our new plant, plan a maximum of flexibility to permit a rearrangement of layout to meet these

changes.

In the various rooms, end walls should not bear utility or mechanical installations which would have to moved when alterations or adjustments were to be made in the future. The same applies to heating or lighting services. They should be so engineered that partition changes would not require major changes in such services.

Because of the fact that utility demands will increase rather than decrease as time goes by, conduit capacity should be based upon a liberal rather than a restricted estimate of future needs.

Too, we must recognize the fact that there are changed ideas regarding the "black board" area. It is no longer called by that name but is now "chalk-board" and is of much smaller area than was formerly thought necessary and is usually of a light color other than black. This naturally provides a better light reflection than the old type black-board. However, if the old black type is used, it is better that a sliding panel of wall matching color be provided to cover the chalk board when not in use.

Perhaps we should give consideration at this point to the kinds of rooms, both special and regular, which we expect this new school to have. Under the new State program, size of classes will be somewhat smaller than those to which we are accustomed. The smaller classes, however, will need no less room than before when we consider the increased activities program which will be possible.

SPECIAL ROOMS

The plan of our new program includes the addition of home making and shop as a part of the science courses for girls and boys respectively. The rooms planned for these courses will likewise be in-

tended for use by the adults of the community in courses for their improvement and benefit.

Ideas regarding the home making room or laboratory have changed somewhat in recent years. Instead of a highly specialized laboratory for foods and clothing, the tendency is to provide either a single room with two to four unit kitchens, the remainder of the room being equipped with sewing machines, tables and easy chairs for clothing and other home making activities under the direction of one teacher. Another plan has a single room so arranged and equipped as to permit using the room either for foods or clothing.

It is best in planning the equipment of such rooms that we do not depart too far from the equipment possible in the community, using that most likely to be used in the homes in the near future. It is desirable that in such a laboratory we provide a small area of 200 to 300 square feet to be used for a demonstration dining room. The table in such a room might well be used as a cutting table in the clothing classes.

Equipment for the laboratory should include stoves, sinks, tables, cabinets, refrigerator, kitchen and table service, sewing machines, electric irons and, if possible, a power washing machine. By all means, abundant space for storage of materials and equipment must be provided.

Such laboratories demand abundant electric outlets, carefully planned, as well as plumbing for the kitchen. Naturally such rooms

had best be isolated from the regular class rooms on account of the noise and odors from the various activities.

Similar conditions apply to the planning of the shop for the boys of the school and the men of the community. It should be located far enough from the regular class rooms to allow for noises which would naturally develop there.

Of primary importance is the safety element. This requires that the space for shop activities be abundant enough to prevent crowding. Attention must also be given to lighting and fire protection. Equipment will be based upon the needs of the community which is essentially agricultural. Ample storage space should be planned for tools and door ways wide enough to admit farm tools which might be brought in for repairs and inspection. This of course would necessitate close proximity to a drive or roadway to allow for this.

The shop, like the home making laboratory should have an abundance of electric outlets, storage space for small tools and materials. Good lighting is necessary and a wash room and toilet should be a part of the plan.

Another special room which we plan to locate away from regular class rooms is the music room or rooms. For our plan which involves teaching both instrumental and vocal groups, we shall need a room larger by half than the regular rooms. Storage for instruments and music is a necessity and cabinets and other storage space must be provided. In our plan, this music room is provided in the multi-purpose room, which is also large enough to be used as a dining room in connection with the school lunch department, or even a medium assembly.

The library, as we have already noted must occupy a position not disturbed by noisy activities, yet be easily accessible to those groups who will be most likely to use it. It should also be in such a position or location as to allow access by the public without disturbing or going through other parts of the school.

Since the library is planned so that its program will provide the boys and girls with service and materials which they need, when they need them, and since it should serve the teachers in their work by helping them in selection and use of all types of library materials to fit the activities in which their pupils are working, the library must have several work areas.

There must be a reading and circulation center. The room must be of sufficient size to seat the largest class in school, with room for at least sixty per cent more. Equipment, besides ten or more books per pupil, should include tables of a size to seat at least three pupils on a side with none at the ends. Variation in table and chair sizes should be made to allow for the different sized pupils who are to use them.

A work and storage room adjoining the library should be equipped with cabinets for storage of supplies and library materials not usually accessible to pupils using the library. This room should have wash basin with running water.

Adjoining the library, we have also placed the book room for the storage of "State books" when they are not in possession of pupils. Such an arrangement makes possibe the distribution of these books under

the supervision of the librarian who is usually best qualified to have charge of such responsibility.

Now recognized as a definite and important part of the achool program, is the lunch department. Since its purpose is to provide food for pupils and teachers, prepared and served to them under strict sanitary conditions, its planning calls for more than passing attention.

As mentioned previously, this department should be located far enough from regular classrooms that annoyance from odors may be avoided. Direct access from the outside should be provided to allow service of supplies by car or truck. This should allow for the natural flow of both raw and prepared materials with the minimum crossing of paths and confusion. It also involves provision for maintaining sanitary conditions as well as comfort and convenience of employees.

Of course access to the dining room should be by covered passageways. It should also be possible to enter the dining room without first entering some other part of the building. This allows for its use by adults or others from the outside, other than the boys and girls who use its facilities each school day at lunch time.

Floor space in the dining room should be sufficient as to allow serving at least one half the pupils at one sitting, allowing ten square feet of floor space per pupil, with care given to counter room in order to provide service for a large group in the least possible time. Tables and chairs to fit the age groups involved are essential items of dining room equipment for the school lunch room.

For the kitchen, a ten burner, two oven gas stove is already available, along with an automatic gas water heater. We also have a

three compartment sink for washing and sterilizing dishes. The chief need of the new department is a larger refrigerator, the greater part of other items of equipment being already in use.

The sanitary provisions must all be planned to meet the demands of the State and County Health Departments. These include the septic tank,grease traps, toilets, ventilation, lighting, wall and floor finish, door and window screens, and all must be given due attention.

The walls should be of material and finish to allow for washing, and the floor should be of a dust free, non-absorbent material which can be easily washed or mopped. One of the best of these is asphalt tile.

Another very important special room is the auditorium. Since our present enrollment is slightly more than five hundred, the capacity of this room should care for at least twenty per cent more, or six hundred.

Careful attention must be given to the acoustics in this room if it is to serve its purpose. It should be a place of beauty and as before mentioned should be accessible from the outside without entering through other parts of the building.

ADMINISTRATIVE ROOMS

In recent years a changing concept of administration has emerged. It has become a leadership and a service function. Its duty is to make the job of the teacher easier and more effective. If the school is to develop within the children the ability to participate in the processes of democracy, teachers must work with the children in a democratic way.

The administration must likewise be democratic in its relationships with the teachers, the children and the community. The administration must lead in developing leadership. It must serve.

In thinking of the above concepts, we must agree that the plan or design of the administrative office must be such as to encourage them. Such an office must be pleasant and attractive with ease of access to pupils, teachers and public.

Space must be provided for meeting the public. This should be easy to find and should adjoin the general office. It should have seats, a bulletin board, mailboxes for teachers, and such space should preferably be located separate from the pupils' waiting room.

In the general office work space the routine business of the school will be carried on. It,then, should include desks, tables, filing space, duplicating facilities, book shelves, cabinets, telephone and those articles of equipment usually associated with clerical functions.

Communicating with this general office is the principal's office, which should also adjoin and communicate with the public waiting space and school corridor. Signs should make it private, yet not make it inaccessible or uninviting. Besides being of sufficient size to allow for conference, this space should include book shelves, filing space, clothes closet and a connecting toilet.

CLASS ROOMS

Class rooms being of necessity more numerous than the special rooms, have been left to the last for discussion and description. Since our program is planned to include all grades from one to nine

the rooms are designed for the duty of providing a place for the special activities of the particular group to be housed therein.

There will not be much variation in the size of these rooms. Although the number of pupils, large or small, will not be more or less according to size, the larger activity program of the younger pupils will require as much room as is needed for those in the higher grades. Equipment, however, will vary with the different grade and age groups, and consequently we would recommend that where possible, cabinets and other facilities, commonly built in the room permanently, be made separately and in such a way as to be interchangeable between rooms. This will allow for more flexibility than otherwise.

THE PLAN

With all of these ideals in mind, we have proceeded to develop a plan which we feel would meet the needs at Dover and should prove most practical in developing our anticipated program. Necessarily we are handicapped by the fact that the new County and State program has not developed to such a point that we can be sure of the amount of funds which will be available. Consequently our plan may, of necessity, be changed to meet financial conditions which are impossible for us to anticipate.

In developing the building plan which we are presenting, I have consulted many persons of experience including teachers in my own faculty, for ideas regarding needs as they have discovered them and ways best to satisfy these needs in room planning and arrangement. Suitable site selection has been discussed with a patrons' committee, and it is through the efforts of this group that we hope to secure

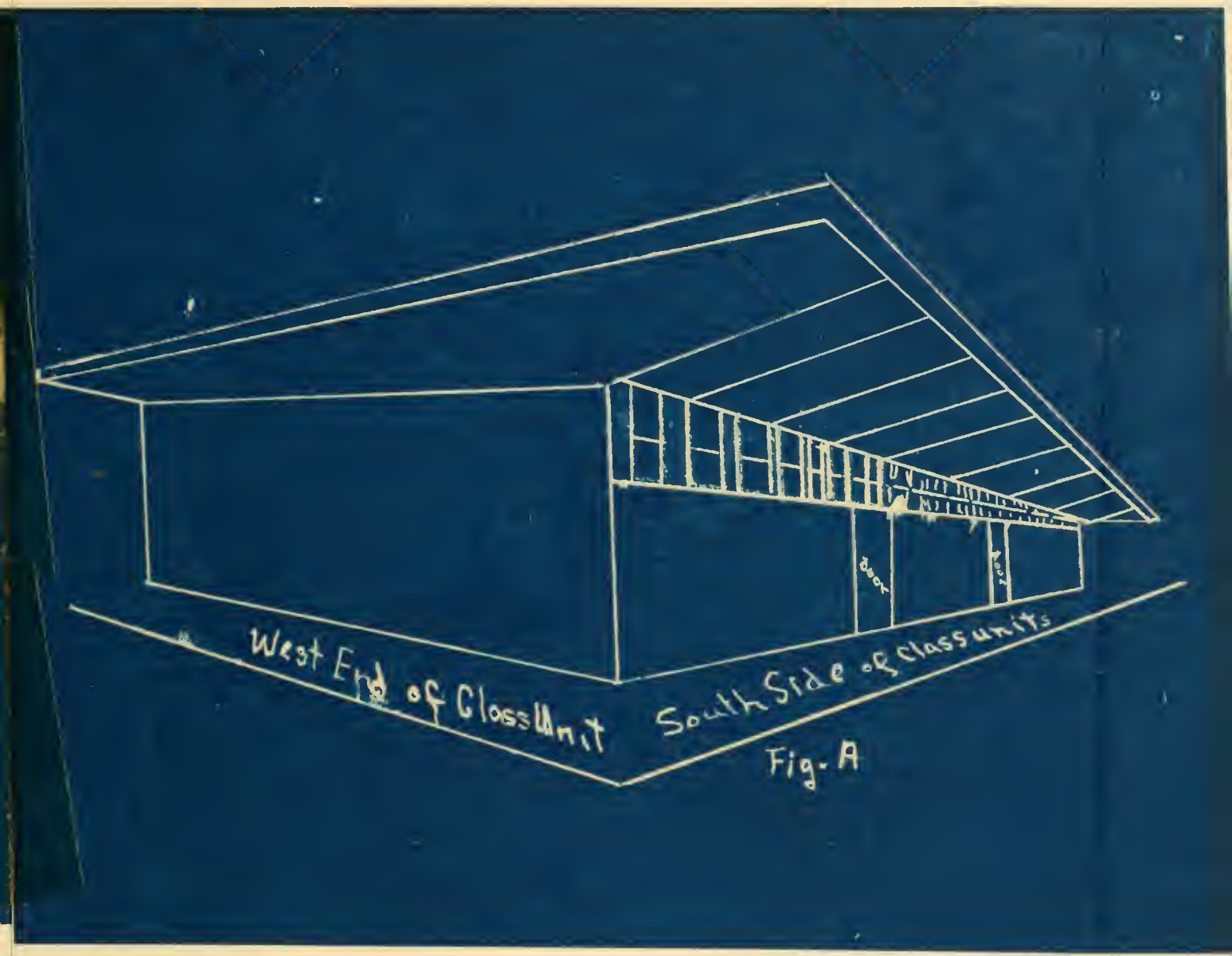

Fig. A

E
N S
W

30 ft 60 ft
Scale

To General Play Area

walk

Heat & Storage | B.T. | G.T. | D.F.
C.R.
Ninth Grade
Eighth Grade
Seventh Grade
Seventh Grade

Heat and Storage | B.T. | G.T. | D.F.
C.R.
C.R.
Sixth Grade
Sixth Grade
Fifth Grade
Fifth Grade

Covered Corridor

Grass and Flowers

Heat and Storage | B.T. | G.T. | D.F.
C.R.
Fourth Grade
Fourth Grade
Third and Fourth Grades
Third Grade
Third Grade

Covered Corridor

Grass and Flowers

Heat and Storage | Boys' Toilet | Girls' Toilet | D.F.
First and Second Grades
Second Grade
Second Grade
First Grade
First Grade
First Grade

Covered Corridor

Primary Grade Playground

Girls' Showers | Boys' Showers

D.R. | Stage | D.R.
walk
Auditorium

Drive

D. Fountain
Shop
Toilet | Washr.
STORAGE
STORAGE
DEM Dining Room
Home Making Room

C | Prin. Office
T
T | S
Work Room
Secy's Office
Public

Covered Corridor

Entrance

walk

D. Fountain
Library
Teachers Room
State Books
Lib. Work Room
Multi-Purpose Room

D.R.
Kitchen
Storage
Refr.
Dish Washing Room

Loading Shed for Buses

Drive

Proposed Plan for Building - by Cowan

Dover School - Dover, Florida - Aug. 1947

the purchase of the selected location for our new building.

In the reading which I have done in preparation of this project, I have given considerable attention to lighting. With such abundant light as Nature has provided here in Florida, we too frequently have found poorly lighted school rooms. Windows are too few and small, if on the north side of the building, and if on the opposite side, the sunlight is too often uncontrolled.

I have been impressed that some of the newer schools in California have hit upon a happy solution of this difficulty, in providing that most of the daylighting be provided through windows on the north with supplementary light from the south through small windows from doorheight to ceiling. The drawings which are included show these features.[1]

The classrooms as shown are arranged in single row units, the length of which extend in an east west direction. The north wall of each classroom is as nearly all glass as is practical for safe construction, except from about three feet up from the floor which is light excluding. On the opposite side of the room, as I have explained before, small windows fill that wall above door height, the direct sunlight being kept out by the projecting roof which covers the passageway along the South side of each of the units. These small windows also provide for cross ventilation in the heated summer months.

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1. See American School Board Journal, May 1947, page 35, "Sunnybrae School Breaks With Tradition".

In our plan, composed of four units of class rooms, all connecting with the front section of the building, we would place and equip classes, related in work or other activities, in close proximity to each other. We have also planned in this front section of the building, which would face the west, certain special rooms to lie as close as possible to those regular classes which would make most use of the special facilities.

With the lighting arrangement as I have suggested, manually operated adjustment of daylight in the rooms is eliminated, shadows will be reduced or almost entirely be doneaway with and we shall be able to secure a higher level of illumination with lower brightness contrasts than is possible in any other way. Of course the design and specifications for the artificial lighting will be brought out by the architect who is selected to complete the plan.

Our design calls for a roof extension of possibly eight feet on the south of each unit. This provides a shelter for the passage or walk way for each of the class room units, and protects the transom windows from the direct rays of sunlight which would otherwise need to be manually controlled. With the underside of this projection painted white or with a good reflection paint, the interior light from this source would be increased materially.

In the plans studied relative to this type of building, the roof supports are steel "I" beams supported by pillars. This plan allows the walls to be entirely free from this weight, permitting a different type of construction and material from what would other-

wise be necessary. It will also permit alteration of room sizes without considerable expense in case such changes become necessary.

Still following the California idea mentioned before, we have also included the heating plan used there. It is that of floor heating, with hot water carried through copper pipes imbedded in the concrete slab floor. This plan keeps the floor, the coldest part of the room, warm and for the mild winters of Florida should prove efficient and not too expensive to operate. "Cost of installation is comparable to conventional heating systems, but the expense of operation and upkeep is considerably lower."[2]

From the heater, the hot water is carried through a 1½ inch pipe in the south wall next to the ceiling. A one-inch branch pipe to each room feeds the cross pipes in the floor, the cooled water returning to the heating plant through another 1½ inch pipe at the base of the opposite wall.

It will be noted that the class room units connect up with the covered corridor along the east side of the front section of the proposed building. This section contains the offices, library, homemaking and shop rooms, with kitchen and multi-purpose room. The latter is planned as a dining room for the lunch department and may also be used as a projection room, for music groups or even a meduim sized assembly room.

Such an arrangement will separate these special rooms from the regular class rooms, yet will make them generally accessible to those

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[2] ibid., page 37

groups using them most frequently.

The library is rather central yet it is convenient to the upper grades who will likely make most frequent use of its services. It is planned large enough to accommodate any complete class and to allow at least sixty per cent of any other to use it the same time.

The library adjoins, in fact opens, into the storage room for State books. Such an arrangement allows the librarian and assistants to have control over book distribution from this department.

The shop, where we plan to teach a combination of science and practical shop work to the boys especially of the older groups, is placed at the extreme north end of this front section. Noises arising here will be separated from other areas which might be disturbed. Even the home making room, just south of the shop layout is separated from it by storage and dining rooms. Provision is made for admitting large tools from the outside, for inspection or repair, through the large entrance arranged on the north side connecting with the road by a driveway.

At theopposite or south end of this front section of the building, the kitchen, with its storage and special arrangements, is located. This allows easy access to this department for service to and from the outside through the covered passageway or corridor. The same exit or entrance provides a covered loading and unloading place for those pupils transported by bus.

Experience has shown that rains are frequent during the summer at the time of day when the pupils are preparing to leave for their homes. This makes it essential that a covered loading place be pro-

vided.

Toilet facilities for both boys and girls are planned at the extreme east end of the classroom units alongside the heating and storage locations shown there. This makes them convenient to those groups expected to use these facilities and will allow supervision by teachers in these particular areas.

At least two drinking fountains are indicated at the entrance to these toilets and also at two different locations along the corridor separating the front section of the building from the classroom units. This permits access to drinking facilities without too much delay and with a minimum of congestion of traffic.

Although no room has been named as such, the plan for a music room involves the use of the multipurpose room for this activity when it requires other than the average classroom. The extra space is provided in the multi-purpose room, and prevents any disturbing noise from reaching the class room areas.

A teachers' room is shown between the library and the multi-purpose room. This may seem a bit distant from some of the class rooms but if it is too convenient there is always a temptation to "hide" away inside when supervision might be needed on the outside.

Provision for showers for both the larger boys and girls is made in the shower rooms shown just east of the auditorium. This places it directly in line with the passage to and from the play grounds and allows for its use as a dressing room as well as a shower room. The distance from other "silent" areas avoids the disturbing noises which frequently originate here.

Although details of the playground are not shown on the drawings, the idea is that for the smaller children, their area would be located just south and east of the units occupied by those groups. That for the older grades would be developed south and southeast of the shower building.

Our idea is that space and prepared areas would be provided for softball, baseball, basketball, volley ball, tennis, shuffle-board and other activities which might be of interest to the different groups.

Naturally the carrying out of these plans, which I have presented as suitable and desirable for our school community, will depend upon cooperation of the new "one district" in voting bonds for county wide school improvements. Then upon the willingness of the selected architect to accept certain ideas which to this section of the country are new, a great deal depends.

Should our ideas be accepted in part or not at all, we feel that changes recommended here would be steps in improving school buildings and conditions long needed in this section of Florida.

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